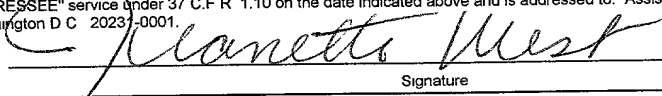
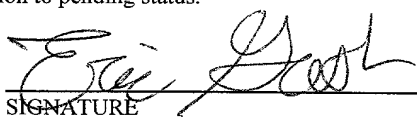


FORM PTO-1390 DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE (REV 5-93)		ATTORNEY'S DOCKET NO. <b>750034.430USPC</b>
<b>TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371</b>		U.S. APPLICATION NO. (If known, see 37 CFR 1.5) <b>09/720448</b> <small>known</small>
INTERNATIONAL APPLICATION NO. <b>PCT/NL99/00383</b>	INTERNATIONAL FILING DATE <b>21 June 1999 (21.06.1999)</b>	PRIORITY DATE CLAIMED <b>26 June 1998 (26.06.1998)</b>
TITLE OF INVENTION <b>A METHOD OF APPLYING A PROTECTIVE ORGANIC COATING TO AN OPTICAL GLASS FIBRE</b>		
APPLICANT(S) FOR DO/EO/US <b>BREULS, Antonius, Henricus, Elisabeth; DE FOUW, Marinus Jacob</b>		
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:		
<ol style="list-style-type: none"> <li><input checked="" type="checkbox"/> This is a <b>FIRST</b> submission of items concerning a filing under 35 U.S.C. 371.</li> <li><input type="checkbox"/> This is a <b>SECOND</b> or <b>SUBSEQUENT</b> submission of items concerning a filing under 35 U.S.C. 371.</li> <li><input checked="" type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).</li> <li><input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.</li> <li><input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2)). <ol style="list-style-type: none"> <li><input checked="" type="checkbox"/> is transmitted herewith (required only if not transmitted by the International bureau).</li> <li><input type="checkbox"/> has been transmitted by the International Bureau.</li> <li><input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US).</li> </ol> </li> <li><input type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)).</li> <li><input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)). <ol style="list-style-type: none"> <li><input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau).</li> <li><input type="checkbox"/> have been transmitted by the International Bureau.</li> <li><input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired.</li> <li><input checked="" type="checkbox"/> have not been made and will not be made.</li> </ol> </li> <li><input type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).</li> <li><input type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).</li> <li><input type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).</li> </ol>		
<b>Items 11 to 16 below concern document(s) or information included:</b> <ol style="list-style-type: none"> <li><input type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98.</li> <li><input type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.</li> <li><input type="checkbox"/> A FIRST preliminary amendment. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment.</li> <li><input checked="" type="checkbox"/> A substitute specification.</li> <li><input type="checkbox"/> A change of power of attorney and/or address letter.</li> <li><input checked="" type="checkbox"/> Other items or information: Postcard and check for filing fees. Applicant hereby claims priority from <b>Netherlands</b> Application No. <b>1009503</b> filed <b>26 June 1998</b>.</li> </ol>		

EXPRESS MAIL MAILING LABEL	
NUMBER <b>EL773170367US</b>	
DATE OF DEPOSIT <b>22 December 2000</b>	
I hereby certify that this paper or fee is being deposited with the United States Postal Service "EXPRESS MAIL POST OFFICE TO ADDRESSEE" service under 37 C.F.R. 1.10 on the date indicated above and is addressed to: Assistant Commissioner for Patents, Washington D.C. 20231-0001.	
 Signature	

U.S. APPLICATION NO. (if known, see 37 CFR 1.5) Unknown <b>09/720448</b>		INTERNATIONAL APPLICATION NO. PCT/NL99/00383	ATTORNEY'S DOCKET NUMBER 750034.430USPC																
17. <input checked="" type="checkbox"/> The following fees are submitted: <b>Basic National Fee (37 CFR 1.492(a)(1)-(5)):</b> Search Report has been prepared by the EPO or JPO .....\$ 860.00  International preliminary examination fee paid to USPTO (37 CFR 1.482) .....\$ 690.00 No international preliminary examination fee paid to USPTO (cu CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2)).....\$ 710.00  Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO .....\$1000.00  International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4).....\$ 100.00  <b>ENTER APPROPRIATE BASIC FEE AMOUNT =</b>			<b>CALCULATIONS</b> PTO USE ONLY																
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input checked="" type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).			\$860.00																
<table border="1"> <thead> <tr> <th>Claims</th> <th>Number Filed</th> <th>Number Extra</th> <th>Rate</th> </tr> </thead> <tbody> <tr> <td>Total Claims</td> <td>3 - 20 =</td> <td>0</td> <td>x \$ 18.00</td> </tr> <tr> <td>Independent Claims</td> <td>1 - 3 =</td> <td>0</td> <td>x \$ 80.00</td> </tr> <tr> <td colspan="3">Multiple dependent claim(s) (if applicable)</td> <td>+ \$270.00</td> </tr> </tbody> </table>			Claims	Number Filed	Number Extra	Rate	Total Claims	3 - 20 =	0	x \$ 18.00	Independent Claims	1 - 3 =	0	x \$ 80.00	Multiple dependent claim(s) (if applicable)			+ \$270.00	\$130.00
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<b>TOTAL OF ABOVE CALCULATIONS =</b>			\$990.00																
Reduction by 1/2 for filing by small entity, if applicable. Verified Small Entity statement must also be filed. (NOTE: 37 CFR 1.9, 1.27, 1.28)			\$0.00																
<b>SUBTOTAL =</b>			\$990.00																
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).			\$0.00																
<b>TOTAL NATIONAL FEE =</b>			\$990.00																
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property)			\$0.00																
<b>TOTAL FEES ENCLOSED =</b>			\$990.00																
			Amount to be refunded:																
			charged																
a. <input checked="" type="checkbox"/> A check in the amount of <u>\$990.00</u> cover the above fees is enclosed. b. <input type="checkbox"/> Please charge my Deposit Account No. in the amount of \$ to cover the above fees. A duplicate copy of this sheet is enclosed. c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. <b>19-1090</b> . A duplicate copy of this sheet is enclosed.  NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.																			
SEND ALL CORRESPONDENCE TO:  GASH, Eric, J. Seed Intellectual Property Law Group PLLC 6300 Columbia Center 701 5th Avenue Seattle, WA 98104-7092 United States of America (206) 622-4900																			
 SIGNATURE  <b>Eric J. Gash</b> NAME  <b>46,274</b> REGISTRATION NUMBER																			

A method of applying a protective organic coating to an optical glass fibre.

The invention relates to a method of applying a protective organic coating to an optical glass fibre or to a coated optical glass fibre, wherein said glass fibre is drawn from a preform and passed through a liquid which contains the material for forming said organic coating, wherein, once the amount of liquid coating material to be applied to the fibre has been adjusted, wherein a gas is carried past the coating material is hardened and a gas is passed along the coating material.

A method of this kind is known from EP-A-0 261 772. In the claims of said patent application it is stated that CO<sub>2</sub> is used as said gas, thus minimizing the number of air inclusions that may form upon forming of the coating. The surface of the coating material of the glass fibre is conditioned by means of CO<sub>2</sub>. It is stated in the introduction of EP-A-0 261 772 that various gases may be used, such as nitrogen, carbon dioxide, noble gases, in particular xenon, neon and argon, and chemically inert gaseous hydrocarbons such as chloroform, Freon (brand name), halogen hydrocarbons or other chlorine- or fluorine-substituted hydrocarbons. In particular, however, CO<sub>2</sub> is used.

A method of the above kind is also known from EP-B-0200256, wherein it is indicated that xenon and dichlorodifluoromethane are gases which are usable within this framework.

Further research has shown that a higher-quality bond of the organic material to the glass fibre is obtained by using a gas other than those which have been proposed so far. Accordingly, the present invention is based on the use of a gas other than those which have been used so far. According to the invention, the method as stated in the introduction is therefore characterized in that nitrous oxide (an N<sub>2</sub>O-containing gas) is used as said gas. The term nitrous oxide as used herein should be understood to mean a gas which contains at least 50% N<sub>2</sub>O.

Preferably, the gas is introduced at the upper side of the device for applying the organic coating material to the fiber. We also found that with the method according to the invention it also is possible to apply a second or third organic coating layer to an already coated fibre. The amount of gas supplied to the liquid organic coating material depends on the construction of the device for applying the coating material and the drawing speed. Nevertheless this amount must

be sufficient for preventing entrained air, that comes along with the fibre, to become entrapped in the coating. The amount of gas can be minimized by using specific nozzles or a small diameter shaft.

- 5 The invention furthermore relates to the optical glass fibre provided with a protective organic coating formed in accordance with a method wherein an  $N_2O$ -containing gas is used as said gas.

## Claims.

1. A method for coating an optical glass fibre or a coated optical glass fibre, wherein said glass fibre is drawn from a preform and passed through an organic liquid coating composition which contains the material for forming said organic coating, followed by adjusting the amount of liquid coating material to be applied to the fibre and curing of the coating liquid to form a solid protective organic layer there on, wherein a gas is conducted over the liquid coating composition, characterized in that nitrous oxide (an  $N_2O$ -containing gas) is used as said gas.

2. A method according to claim 1, characterized in that said nitrous oxide is introduced to said liquid coating composition at the upper side thereof, at the place where the fibre is supplied into the liquid coating composition.

3. A glass fibre provided with a protective organic coating, characterized in that said glass fibre has been obtained by using a method as defined in claim 1.

A method of applying a protective organic coating to an optical glass fibre.

5 The invention relates to a method of applying a protective organic coating to an optical glass fibre or to a coated optical glass fibre, wherein said glass fibre is drawn from a preform and passed through a liquid which contains the material for forming said organic coating, once the amount of liquid coating material to be applied to the fibre has been adjusted, said coating material is hardened and a gas is  
10 passed along the coating material.

A method of this kind is known from EP-A-0 261 772. In the claims of said patent application it is stated that CO<sub>2</sub> is used as said gas, thus minimizing the number of air inclusions that may form upon forming of the coating. The surface of the coating material of the glass  
15 fibre is conditioned by means of CO<sub>2</sub>. It is stated in the introduction of EP-A-0 261 772 that various gases may be used, such as nitrogen, carbon dioxide, noble gases, especially xenon, neon and argon, and chemically inert gaseous hydrocarbons such as chloroform, Freon (brand name), halogen hydrocarbons or other chlorine- or fluorine-substituted hydrocarbons. In  
20 particular, however, CO<sub>2</sub> is used.

A method of the above kind is also known from EP-B-0 200 256, wherein it is indicated that xenon and dichlorodifluoromethane are gases which are usable within this framework.

Jochem et al "High-speed bubble-free coating of optical  
25 fibres on a short drawing tower" (IOOC and ECOC), Venice, 1985, part 1, pages 515-518, Istituto Internazionale Delle Comunicazioni discloses the use of several gases in such a process to draw optical fibres. In table 2 one mentioned air, He, A, Xe and CCl<sub>2</sub>F<sub>2</sub>. However Jochem et al did not indicate the gascomposition used according to the invention.

30 From EP-A-0 635 554 it is known that an optical fibre can be coated with hydrogen silsesquioxane by heating the fiber at a temperature of 50-1000 °C during up to 6 hours. The heating may be conducted at any pressure and under oxidizing or non-oxidizing gaseous environment usch as air, O<sub>2</sub>, an inert gas (N<sub>2</sub>, etc.), ammonia, amines,  
35 moisture, N<sub>2</sub>O, hydrogen and hydrocarbons. From this disclosure the specific gas used according to the invention can not be derived.

Further research has shown that a higher-quality bond of the organic material to the glass fibre is obtained by using a specific gas. According to the invention, the method as stated in the introduction is therefore characterized in that nitrous oxide (an  $N_2O$ -containing gas) is used as said gas. The term nitrous oxide as used herein should be understood to mean a gas which contains at least 50%  $N_2O$ .

Preferably, the gas is introduced at the upper side of the device for applying the organic coating material to the fibre and carried downstream along with the glass fibre. We also found that with the method according to the invention it also is possible to apply a second or third organic coating layer to an already coated fibre. The amount of gas supplied to the liquid organic coating material depends on the construction of the device for applying the coating material and the drawing speed. Nevertheless this amount must be sufficient for preventing entrained air, that comes along with the fibre, to become entrapped in the coating. This amount of gas can be minimized by using specific nozzles or a small diameter shaft.

The invention furthermore relates to the optical glass fibre provided with a protective organic coating formed in accordance with a method wherein an  $N_2O$ -containing gas is used as said gas.

ALREADY SENT  
BY FACSIMILE  
1

Amended set of claims for international application PCT/NL99/00383 in the name of Plasma Optical Fibre B.V.

- 5 1. A method for continuously coating an optical glass fibre or a coated optical glass fibre, wherein said glass fibre is drawn from a preform and passed through a body of an organic liquid coating composition which contains the material for forming said organic coating, followed by adjusting the amount of liquid coating material to be applied  
10 to the fibre and curing of the coating liquid to form a solid protective organic layer thereon, wherein a gas is conducted over the liquid coating composition, characterized in that nitrous oxide (an  $N_2O$ -containing gas) is used as said gas.
- 15 2. A method according to claim 1, characterized in that said nitrous oxide is introduced to said liquid coating composition at the upper side thereof, at the place where the fibre is supplied into the liquid coating composition.
- 20 3. A glass fibre provided with a protective organic coating, characterized in that said glass fibre has been obtained by using a method as defined in claims 1 - 2.

## DECLARATION AND POWER OF ATTORNEY

As the below-named inventors, we declare that:

Our residences, post office addresses, and citizenships are as stated below under our names.

We believe we are the original, first, and joint inventors of the invention entitled "A METHOD OF APPLYING A PROTECTIVE ORGANIC COATING TO AN OPTICAL GLASS FIBRE," which is described and claimed in the specification and claims of International Patent Application No. PCT/NL99/000383, which was filed on 21 June 1999 and for which a patent is sought.

We have reviewed and understand the contents of the foregoing specification, including the claims, as amended by any amendment specifically referred to herein (if any).

We acknowledge our duty to disclose information of which we are aware which is material to the patentability and examination of this application in accordance with 37 C.F.R. § 1.56(a).

We hereby claim foreign priority benefits under 35 U.S.C. § 119 of the foreign patent application listed below:

PRIOR FOREIGN/PCT APPLICATION(S) AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. 119:			
COUNTRY	APPLICATION NUMBER	DATE OF FILING	PRIORITY CLAIMED UNDER 35 USC 119
Netherlands ✓	1009503 ✓	26 June 1998 ✓	Yes

29- We hereby appoint Richard W. Seed, Reg. No. 16,557; Robert J. Baynham, Reg. No. 22,846; George C. Rondeau, Jr., Reg. No. 28,893; David H. Deits, Reg. No. 28,066; William O. Ferron, Jr., Reg. No. 30,633; David J. Maki, Reg. No. 31,392; Richard G. Sharkey, Reg. No. 32,629; David V. Carlson, Reg. No. 31,153; Karl R. Hermanns, Reg. No. 33,507; David D. McMasters, Reg. No. 33,963; Michael J. Donohue, Reg. No. 35,859; Jane E. R. Potter, Reg. No. 33,332; Robert Iannucci, Reg. No. 33,514; Lorraine Linford, Reg. No. 35,939; David W. Parker, Reg. No. 37,414; E. Russell Tarleton, Reg. No. 31,800; Ellen M. Bierman, Reg. No. 38,079; Brian G. Bodine, Reg. No. 40,520; Robert M. Ward, Reg. No. 26,517; Kevin S. Costanza, Reg. No. 37,801; Thomas E. Loop, Reg. No. 42,810; Stephen J. Rosenman, Reg. No. 43,058; Brian L. Johnson, Reg. No. 40,033; Susan D. Betcher, Reg. No. 43,498; William T. Christiansen, Reg. No. 44,614; Gary M. Myles, Reg. No. 46,209; Eric J. Gash, Reg. No. 46,274; Jeffrey C. Pepe, Reg. No. 46,985, and Charles J. Rupnick, Reg. No. 43,068; comprising the firm of Seed Intellectual Property Law Group PLLC, 701 Fifth Avenue,

Suite 6300, Seattle, Washington 98104-7092, as our attorneys to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. Please direct all telephone calls to Eric J. Gash at (206) 622-4900 and telecopies to (206) 682-6031.

We further declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that the making of willfully false statements and the like is punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and may jeopardize the validity of any patent issuing from this patent application.

  
1-00 Antonius Henricus Elisabeth Breuls

Date January 9, 2001

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